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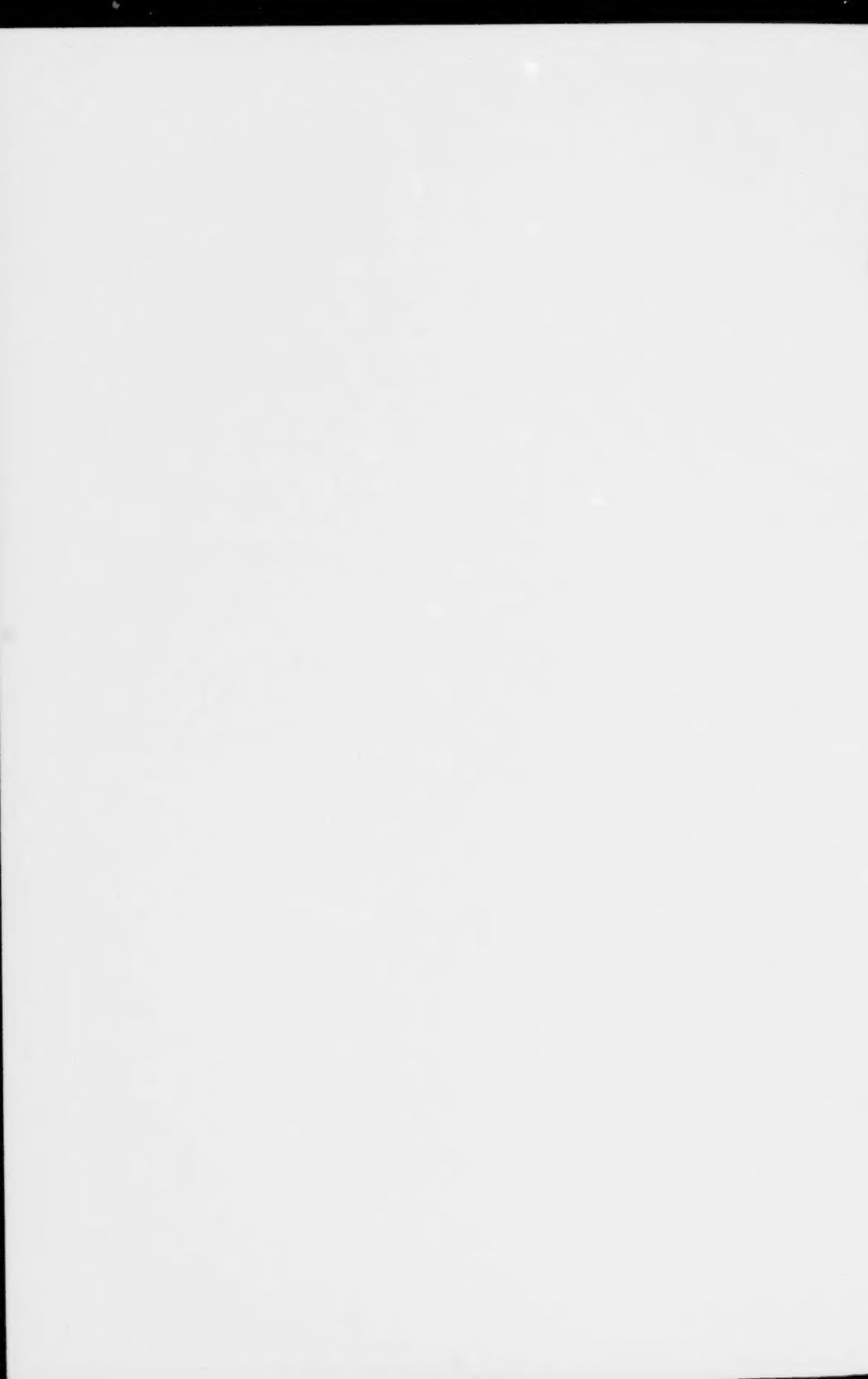
Voluntary
**ECONOMIC
PLANNING**



NOVA SCOTIA
VOLUNTARY PLANNING BOARD

PLAN FOR THE FISHERIES SECTOR

NOVEMBER, 1966



NOVA SCOTIA

VOLUNTARY PLANNING BOARD

PLAN FOR THE FISHERIES SECTOR

November, 1966

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The Chairman and Members,
Nova Scotia Voluntary Planning Board

Gentlemen:

On behalf of the Fisheries Sector Committee I am pleased to submit our Fisheries Sector Plan for the planning period 1965 to 1968.

After the sector was organized in May 1963, committee meetings and discussions were held until November 1964 when we submitted our report for your consideration. During 1965 several discussions were held dealing with specific topics, particularly the training of fishermen. No new recommendations were added but these discussions resulted in clarifying and rewording our previously submitted recommendations. This report contains the revised recommendations as well as a brief summary of the action being taken in implementing these recommendations.

The outlook for growth of the fisheries sector is excellent with increased production and productivity. However, these increases will not be as large or as prolonged without continuing efforts being made by both governments and the private sector in developing efficient resource utilization and an efficient industrial structure. This will require an aggressive and creative approach to solving the problems which

stand in the way of this goal. Our committee is willing to continue to do their part in working for a viable fishing industry in Nova Scotia.

Respectfully submitted

J.H. MacKichan,
Chairman,
Fisheries Sector
Committee

J. H. MacKichan

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PREFACE

This report is one of a series being published by the Nova Scotia Voluntary Planning Board to serve as supplements to the "First Plan". While the "First Plan" was based on conclusions of the many segment and sector committees, it dealt primarily with the overall economic goals for Nova Scotia and the general strategy for achieving these goals. This report deals specifically with the work of the fisheries segment and sector committees.

The sector includes both the primary fishing industry and the secondary or fish processing industry. The primary industry includes all activities necessary to land fish at the wharves. The secondary industry processes and packages the landed fish in a wide variety of forms. While amongst the established firms in the fresh and frozen industry integration of the primary and secondary activities is prevalent it was found to be convenient to break the sector down into five segments of allied interests. Three segments represented by the Fresh and Frozen Fish, Salt and Pickled Fish and Fish By-Products Committees dealt with the processing and marketing phases of production. The Lobster Segment Committee dealt with all phases from harvesting to marketing. The fifth segment committee, Vessel Owners and Operators, was concerned with problems associated with procuring fish for the processing industry.

These five committees had a total membership of fifty-three men representing their respective fields of

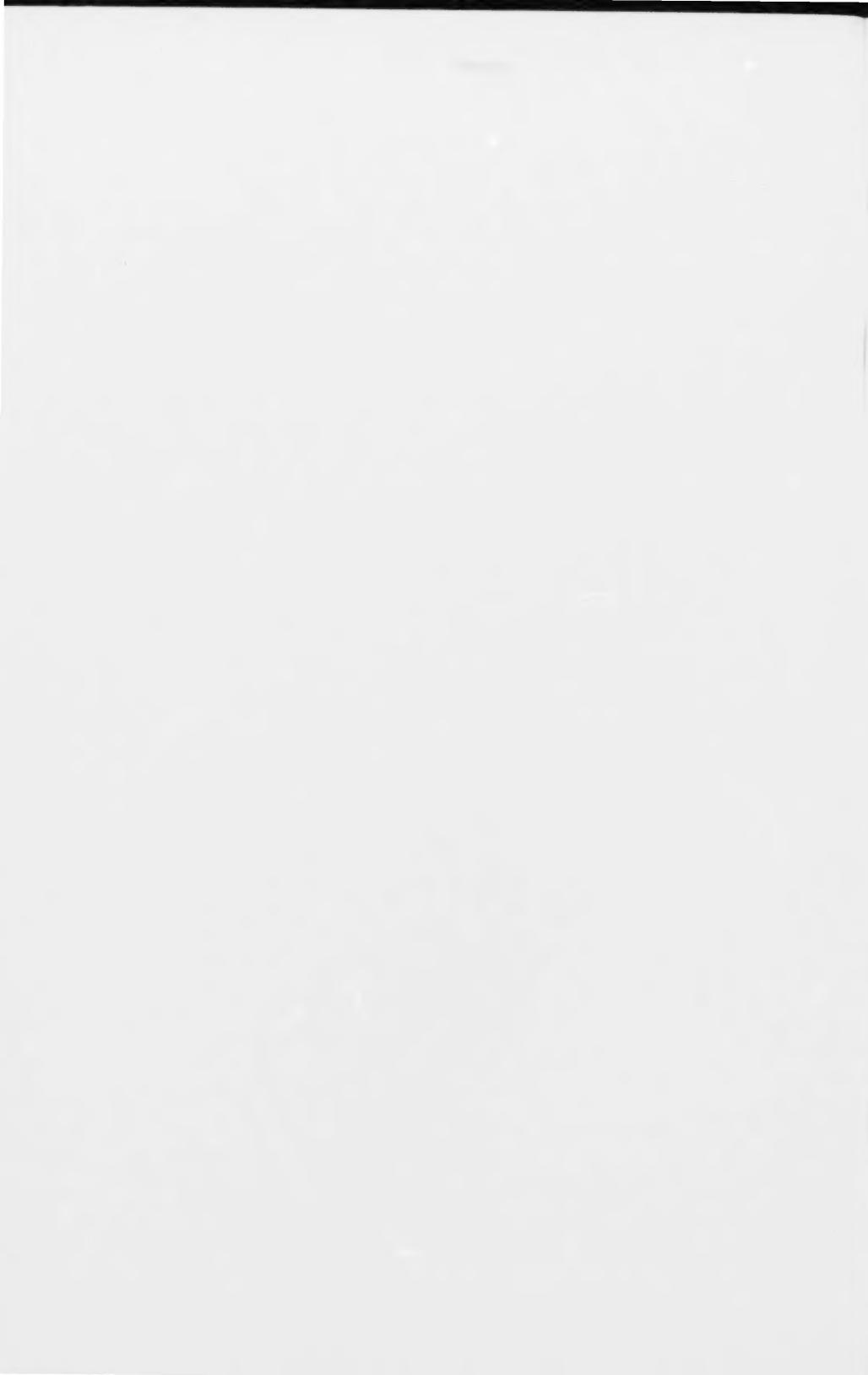
interest. The majority were drawn from industry, with the remainder from government research agencies and fisheries departments. The latter group served as secretaries.

The discussion at committee meetings was centered around the technical and economic performance of each segment, its future potential and the problems that are and will be encountered in reaching its full potential. Once the problems were delineated, programs were devised to solve them as far as possible. These problems and programs along with a brief resume of the segment were outlined in a report which was forwarded to the Sector Committee. Most of the segment committees required three all-day meetings to prepare their reports.

The Sector Committee, whose responsibility was to produce an overall plan for the sector, was composed of twenty-six members including segment committee chairmen, and other representatives of industry, labour and government. The Sector Committee reviewed the segment committee reports, using them as a basis for the overall fisheries plan. Further programs and recommendations were added, together with an outlook on future production and employment in the sector. After four meetings the sector plan was drafted and then forwarded to the Voluntary Planning Board for its consideration.

The purpose of this paper is to report on the discussions held in the fisheries sector, that is its problems, its future, and policies best suited to enable it to reach its potential. These views are not backed up by detailed analysis but are based on the views held

by those who are working with or within the industry. While the Committee recognized that some of the problems in the sector were more of a social nature and their answers lie outside the industry, the Committee confined itself to those problems which it felt it was more qualified to discuss. The available statistical information is used mainly for descriptive purposes in outlining briefly the development of the industry and its importance to the provincial economy. The recommended policies are for the most part stated in general terms. The committees felt that the detailed implementation could best be worked out by the individuals involved, that is between industry and government representatives or within the industry. The recommendations are put forward as a guide to what the committee considers to be the necessary future action in order to achieve the goals of the sector.



Chapter I

INTRODUCTION

John Cabot's voyage of 1497 attracted the attention of Europeans to the cod fisheries off the coast of Nova Scotia and Newfoundland, and this resource provided the initial basis of development for the Nova Scotia economy. Fishing became the main occupation among the early settlers and remained so until the late eighteenth century.

The Province's oldest industry has undergone many significant changes from the early days of seasonal fishing stations along the Nova Scotia coast. Generally these changes have been similar to those taking place in the other primary industries; higher capital intensity, larger operating units, changing product forms with a higher degree of processing and a changing organizational structure. One of the most significant changes has been the shift from cured products, mainly dried salted fish, to fresh and frozen production and the accompanying changes in structure of the industry.

The initial development of the industry was based on the production of dried salted fish, principally cod. Throughout the eighteenth and nineteenth centuries the development of the industry in Nova Scotia depended to a large degree on the competition in the Caribbean salt fish markets provided by the New England States. During the late eighteenth century development was rapid when New England was excluded from these markets as a result of the American Revolution. New England regained entry to these

markets in 1830 to the disadvantage of Nova Scotia's prosperous trade. However, the expanding fresh fish market in the United States led to the eventual withdrawal of New England from the Caribbean markets in the latter part of the nineteenth century. Nova Scotia again took over New England's position in this market which continued until the 1930's when, with the development of fresh and frozen fish production in the province and severe competition from Newfoundland in the Caribbean salt fish markets, Nova Scotia's position there declined.

During this time of schooners and salt fish production technological changes were taking place. In the early twentieth century trawlers and diesel engines were being developed. Later in the 1920's filleting was developed followed by methods for quick freezing. However the fresh and frozen fish industry in Nova Scotia did not start to develop until the late 1920's and 1930's, much later than similar development in New England. Nova Scotia's late start was the result of several factors. Probably the most important factor was markets. Unlike New England, Nova Scotia did not have easy access to large markets in close proximity. Problems in the transportation of fresh fish to the distant markets of Quebec and Ontario had to be overcome. The closest large market was New England which was protected by tariffs. However, as costs rose in the New England industry Nova Scotia was able to enter this market despite the tariffs. Another factor delaying development in Nova Scotia was the lack of a trawler fleet. The introduction of trawlers met with opposition from the

inshore fishermen who were successful in getting legislation enacted which impeded any development of a trawler fleet. There was no significant development of the frozen fish industry until the Second World War when governments encouraged the expansion of food supplies. Gradually restrictions on trawlers were reduced and the expansion of the province's fishing fleet was encouraged by subsidies established for the shipbuilding industry.

Not only was the fishing industry the first to develop and the major economic activity in Nova Scotia, it still occupies a position of importance in the province's economy. The fisheries sector employs more than six percent of the province's labour force and slightly less than one-fifth of the total number of persons employed in the province's commodity producing industries. In 1964 the activities of the sector added 63.2 million dollars to the province's economy. The primary fishing industry added 42.4 million dollars¹ while the fish processing industry contributed an estimated 20.8 million dollars. Of the four natural resource-based sectors, fisheries had the largest employment and net value of production. The sector's products form an important part of Nova Scotia's international export trade amounting to 22% of the total value of exports in 1963. During that year Nova Scotia exported approximately 30 million dollars worth of fish

¹This is a gross value. Net values are not given for primary fishing.

and fish products.

The fisheries sector is not a homogeneous industry, but is comprised of a number of parts, each subject to a different set of factors. There is a wide variety of production techniques, scales of operation, efficiency and earnings. As a result of utilizing more than forty species of commercial fish, the sector produces a wide range of different products. Although fishing and processing are to a large extent integrated on a company basis, especially in the production of frozen products, these two operations provide a convenient grouping for discussing the sector. This approach will be taken throughout the following chapters.

The report is basically divided into three sections. The first presents a brief review of the historical development and trends of the sector during the twenty years since the end of World War II. Due to the diversification of the sector activities, statistics presented must be used with more than the usual caution. It is a practical impossibility to have statistics which are detailed enough to bring out many of the trends and problems found in the sector. The statistics which have been used are mainly averages and aggregates. The second section is devoted to a synopsis of committee discussions. As well as providing an overall strategy for the development of the sector, barriers to future development are indicated along with all of the policies recommended by the sector. Not all of these policies were accepted by the Voluntary Planning Board for inclusion in its First Plan. Those which were accepted

are noted by an asterisk (*) as well as being listed separately in the Appendix. The third section is a chapter on future employment and output. This chapter includes the targets established for the fisheries sector during the first planning period.

Chapter II

THE POSTWAR DEVELOPMENT OF THE FISHERIES

The fishing grounds of the Northwest Atlantic provide nearly one hundred per cent of the raw materials used in the fishing industry of Nova Scotia. The quantity of fish taken from this area in 1964 was 2,950 thousand metric tons.¹ While the Atlantic Provinces are in the most favourable location to fish these grounds their share of the catch amounted only to 28 per cent. The remaining portion was distributed principally among Russia, United States, Spain, Portugal and other European countries. During the ten year period from 1954 to 1964 the total catch taken from this area increased by 59.7 per cent, while Canada's catch in the same area increased by only 21.1 per cent. This has resulted in Canadian landings declining from 37 per cent of the total landings in 1954 to 28 per cent in 1964.

The Nova Scotia Catch

The trend in Nova Scotia landings over the last ten years has been

¹This is on the basis of the International Commission for the Northwest Atlantic Fisheries Convention area. This area stretches from the northwestern coast of Greenland south to the coast of New Jersey (or from approximately 70°N. latitude to 40°N. latitude). It includes all of the eastern Canadian banks, western Greenland banks and the northeastern United States banks.

slowly upward. The 1952-54 average annual landings were 388 million pounds while the average from 1962-64 was 459 million pounds. This represents a rate of annual increase of approximately 1.7 per cent. The growth of the quantity of fish and shellfish landed has been inconsistent (Table A-1). From 1947 the trend was upwards reaching a peak of 468.5 million pounds in 1958. During the next five years the catch declined to 427 million pounds in 1963 then increased by 20 per cent in one year to reach 514.7 million pounds in 1964. The catch of groundfish² and herring was particularly significant in causing a decline in total catch to 1963 and the sudden increase in 1964. Between 1958 and 1963 cod landings declined by 14 million pounds, redfish landings by 6 million and herring by 46 million pounds. In 1964 groundfish landings (principally small flatfish³, haddock and cod) and herring landings increased by 45 million and 39 million pounds respectively.

While the size of the total catch has changed over the years there have been several important changes in the species composition of the catch. Table 1 shows in summary form some of these changes.

²Groundfish includes cod, haddock, hake, cusk, pollock, catfish, redfish, skate, halibut, flounders, plaice, witch, yellowtail, etc.

³Small flatfish includes flounders, plaice, yellowtail, witch, etc.

Table 1

Species Composition of the Nova Scotia Fish Landings
For Selected Years 1939-1964
(Expressed as Percent of Total Catch in Pounds)

	<u>1939</u>	<u>1949</u>	<u>1954</u>	<u>1959</u>	<u>1964</u>
Groundfish					
Cod	39.6	42.2	33.2	25.5	20.2
Haddock	13.3	12.2	17.2	18.4	17.3
Flatfish	3.2	3.4	7.9	11.3	13.2
Other	<u>8.7</u>	<u>11.6</u>	<u>20.2</u>	<u>18.5</u>	<u>16.5</u>
Sub-total	64.8	69.4	78.5	73.7	67.2
Pelagic	27.0	21.0	13.0	18.5	24.4
Estuarial	2.2	1.7	1.7	1.2	0.9
Lobster	5.4	5.5	5.9	5.0	3.7
Other Shellfish and Crustaceans	<u>0.7</u>	<u>2.6</u>	<u>1.0</u>	<u>1.7</u>	<u>3.6</u>
	99.1	100.2	100.1	100.1	99.8

The quantity of groundfish caught has risen since 1947 to 346 million pounds in 1964 with fluctuations similar to those mentioned previously for the aggregate landings. Groundfish relative to the total catch rose to a peak in the early fifties and then declined to where it accounted for approximately two-thirds of the total catch in 1964. Cod, the dominant species of groundfish, presently accounting for one-third of the groundfish caught, has declined from its 1947 level of 151 million to 104 million pounds. Small flatfish have shown the largest and most consistent gain increasing 60 million pounds to a total of 65 million pounds from 1947 to 1964. Pollock and haddock showed 29 million and 58 million pound gains respectively during the same period. However, the gains were not consistent, especially haddock which had increased by 57 million pounds by 1956 and then declined until 1964.

Pelagic fish, principally herring, mackerel and swordfish have remained close to one-fifth of the total catch. Table 1 seems to indicate a downward trend, however, this is due to the great variability from year to year in herring catches and to a lesser extent mackerel. The quantity of herring caught in 1954 was exceptionally low and in 1959 the same was true for mackerel. Herring landings have been the product of a highly variable inshore fishery. While the overall trend is upward the landings reached a high in 1958 of 104 million pounds, declined to 59 million pounds in 1963, then rose to 98.5 million pounds in 1964. Swordfish has shown a modest increase from 2 million to 7 million pounds in 1959.

Then the landings jumped from 4 million to 12 million pounds from 1962 to 1963. This sudden increase was the result of changing from the harpoon to the longline method of fishing. Mackerel has varied in quantity since 1947 from 25 million pounds in 1949 to 6 million pounds in 1959 and has since risen to 14 million pounds in 1964.

Lobster catches rose to 24 million pounds in the early fifties and since then have remained steady at approximately 20 million pounds. This has resulted in a relative decline in the proportion of lobster in the total catch.

The growth of scallop landings has been from one half a million to 16 million pounds. This has been one of the most notable developments in the Nova Scotia fisheries in the past ten years. The rise in scallop landings combined with the decline (mainly of salmon and smelt) of estuarial fish landings has resulted in "other shellfish" rising in proportion of the total quantity caught to fourth position.

Table 2 shows the relative importance of species in terms of landed value and quantity. The ten species in each list account for over 90 per cent of the landed value or quantity. In changing from quantity to value terms, it is significant to note that lobster, scallops, halibut and swordfish increased their relative positions, while all other species declined.

The landed value of the catch has been increasing at a faster rate than the total quantity landed. The average annual increase was approximately five

per cent between three year averages for 1952-54 and 1962-64. This has been the result of several factors such as rising prices and a shift in the composition of the catch to higher valued species, i.e., small flatfish, swordfish and scallops. Secondly, prices have risen slightly due to the changing forms of final fish product marketed to the consumer. This change has been towards the higher valued frozen fillet and block products. This had tended to slowly increase the landed price of those species which are important to the frozen fish trade.

The prices for lobster and the quantity of scallops landed have also tended to raise the total landed value faster than the total quantity landed. Although the quantity of lobster landed has declined slightly from the early fifties, its total landed value has risen. Lobster has shown a greater absolute increase in the average landed price per pound than other species (from 38 cents per pound in 1954 to 63 cents per pound in 1964). Scallops, another high-valued species, have had a per pound increase of 11 cents in the same period, this along with greatly increased landings, resulted in an increased landed value of from 0.7 million dollars in 1954 to 7 million dollars in 1964.

Rising prices have had particular significance in pushing landed value up between 1958 and 1963. During this period the total quantity landed decreased by 8.8 per cent while the landed value increased by 45.4 per cent. This trend was changed in 1964 when a rising quantity (by 20.5 per cent over 1963) was

Table 2

The 10 Most Important Fish Species in Nova Scotia 1964
(Based on quantity and landed values)

	Pounds (Millions)	Percent of Total Catch		Dollars (Millions)	Percent of Total Landed Value
1. Cod	104.1	20.2	Lobster	12.0	29.3
2. Herring	98.5	19.1	Scallops	7.0	17.1
3. Haddock	88.8	17.3	Haddock	5.4	13.2
4. Small Flatfish	64.8	12.6	Cod	4.8	11.7
5. Pollock	48.4	9.4	Swordfish	3.6	8.8
6. Lobster	19.1	3.7	Small Flatfish	2.4	5.9
7. Scallops	16.0	3.1	Pollock	1.5	3.7
8. Mackerel	13.9	2.7	Halibut	1.1	2.7
9. Redfish	12.6	2.4	Herring	0.9	2.2
10. Swordfish	11.9	2.3	Mackerel	0.5	1.2
		<u>92.8</u>			<u>95.8</u>

responsible for an increase in landed value (by 16.6 per cent over 1963). The fact that total value did not increase as fast as the quantity in 1964 was the increase of the low valued herring catch.

Employment in Fishing

The total number of men annually employed in the province's primary fishing industry has shown a definite downward trend (Table A-1). The decline reached its low point in 1961 with a total employment of 12,578 persons. In 1962 and 1963, employment increased to 13,407 persons then was reduced by 134 persons in 1964. The recent increase was probably the result of rising fish prices and the generally high unemployment in the region. As these are employment totals, they are deceptive since they do not indicate the labour input in terms of time spent fishing.

In 1961 the first data became available which allowed a more detailed look at labour inputs. Table 3 shows this breakdown of employment. Those fishermen classified as "full time" have increased at the rate of 6.8 per cent over the three year period and have risen from 26.5 per cent of the total to 30.4 per cent of the total. "Part time" fishermen have slightly declined as a proportion of the total while the "occasional" fishermen show the greatest decline.

The most significant change occurring in the labour force of the primary fishing industry is the increase in the number of full time offshore fishermen. It has been estimated that

Table 3

The Extent of Fishing Employment

[illegible]

Note: Full Time - 10 months or over

Part Time - 5 to 10 months

Occasional - less than 5 months

Source: D.B.S., 24 - 205

offshore fishermen have been increasing at a greater than 10 per cent annual rate to where they now form nearly a quarter of all fishermen.

Many fishermen move from one fishery to another depending on the season. The majority of the fishermen are employed in the inshore lobster fishery for part of the year. The number of men participating in the fishery has slowly increased to ten thousand. (Table A-4). Those fishing for groundfish have also gradually increased, reaching 7.4 thousand in 1964. (Table A-3). The next largest employer of men is the herring fishery which until recently has been principally an inshore operation employing nearly four thousand fishermen. Other important fisheries include mackerel employing 2.6 thousand men, swordfish and scallops with nine hundred men each in 1964. The scallop fishing has shown rapid growth in employment increasing from 334 men in 1959 to 889 men in 1964.

Based on three year averages the average landed weight per fisherman increased from 26,025 lbs. per man in 1952-54 to 34,867 lbs. per man in 1962-64. This represents a 34 per cent increase during the last ten years or an average annual increase of three percent. These figures somewhat overstate the actual increase since the employment data prior to 1958 has been said to contain some duplication. The growth in landings per fisherman can be partly attributed to the increasing number of full time fishermen. A more refined measure of productivity increase shows that in the last three years, 1961-64, there was a total increase

of 5.9 percent in the landed weight per fisherman.⁴

In the individual fisheries few trends in landings per fisherman are evident during the period since 1959 when data first became available. In the groundfish fisheries, landings per fisherman were 46.8 thousand pounds in 1960, they then declined to 40.2 thousand pounds in 1963 increasing to 46.6 thousand pounds in 1964. The herring fishery has fluctuated from a low of 14 thousand in 1963 to 24.8 thousand pounds per man in 1964. Productivity reached its peak in the scallop fishery in 1960 at 20 thousand pounds per man and has since declined to 18 thousand pounds per man in 1964. The swordfish fishery has shown a drastic increase with the introduction of longlining in 1963, increasing from 3.6 thousand to 13.4 thousand pounds per man between 1962 and 1964.

Due to the rapid rise in the value of the catch the average value landed per fisherman has increased from an average of \$1,494 for 1952-54 to \$2,709 in 1962-64. This represents an annual average increase of approximately 6 percent. As in the average landings per fishermen, this growth is slightly over

⁴Derived from using the full time, part time, occasional classification and calculating total man years for each year by assuming an average working year of 12 months, 8 months, and 3 months for each of the respective classifications.

stated. Between 1961 and 1964 the increase in value was greatest and by estimating man years of employment the value per full time fisherman increased from \$3,578 to \$4,887 at an average annual rate of 11 per cent.

The fishery showing the largest gain in value landed per fisherman is the swordfish fishery where the data shows more than a doubling of value per fisherman from \$1,905 in 1959 to \$3,988 in 1964. The lobster, mackerel and scallop fisheries showed more modest gains with an average annual increase of from 5.4 to 7.5 per cent in the same period. The actual landed value per fisherman varies greatly with a low of \$210 in mackerel to a high of nearly \$18,000 in the scallop fishery. In groundfish, the increase from \$1,869 in 1959 to \$2,207 in 1964 has been small, averaging 3.4 per cent per year. Little change has been noted in the herring fishery.

These data on landed value per fisherman are gross data and it is difficult to draw conclusions on net income as little information is available on the changes in the costs incurred. Also due to the lack of cost data in the individual fisheries and the time spent in active fishing it is difficult to make income comparisons between the individual fisheries.

Capital Investment in Fishing

The capital stock employed in the primary fishing industry fluctuated between 22 and 26 million dollars during the period from 1951 to 1960. This

information was not collected after 1960. However, there is good reason to believe that the value has increased since this period in line with the increasing rate of investment (Table A-2). The capital stock is represented by three items: vessels, gear and shore installations. The structure of the capital stock has changed significantly. The largest portion of the capital stock is made up of vessels which represented two-thirds of the total value of capital in 1960; a nine per cent increase from 1951. Gear represented one-third of the value in 1951 but declined to 27 per cent in 1960. This decline was principally the result of the decline in the number of lobster traps which make up approximately three-fifths of the total gear value. Shore installations account for the remainder of the capital stock and these have declined since 1951.

The primary fishing industry has experienced rapid increases in the amount of new investment in vessels and gear. Since 1961, it has increased at an annual rate of approximately three million dollars, more than doubling in the three year period to 1964 (Table A-2). While new investment in gear comprised more than half (63 per cent) of the total new investment in primary fishing in 1961, investment in vessels has increased to such an extent that by 1964 new investment in gear was only 30 per cent of the total. The greatest portion of the investment in new vessels is in the larger size classes. Trawlers⁵ have increased in number from

⁵Trawlers - vessels over 100 feet in length using an otter trawl.

nine in 1951 to fifty-two in 1964. Vessels of a hundred tons or larger have more than doubled their number; from 61 vessels in 1961 to 123 vessels in 1964. Of the 123 vessels in 1964, fifty were scallop draggers and seventy were employed principally as groundfish vessels.

The recent increase in investment in larger vessels has started to show results. Groundfish landings have increased, particularly in 1964 after declining to a low in 1961. Scallop landings have increased substantially as more and larger vessels have joined the fleet of scallop draggers. These increased landings have occurred despite increased fishing efforts necessary to land a pound of fish. The growing capital intensity of the fisheries has also had its effects on employment. Since much of the new investment has gone into the larger offshore fishing vessels, fewer men are producing more fish and more men are working a larger portion of the year, thereby reducing, to some extent, the seasonality of fisheries employment.

The Fish Processing Industry

The past trends in the processing industry are difficult to determine due to the shortage of comparable historical data. However, the overall situation appears to be one of increasing production and a changing product mix from a declining number of plants as average plant size increases. Employment in the industry has risen slightly since 1957.

Production, as measured by the gross value of shipments, has increased

50 per cent from 1957 to 1963. This increase is a result of increases in per unit value of output and physical quantities. There has been a trend of increased processing of the catch resulting in more specialized products as shown by the increased output of frozen, filleted and pre-cooked products. Prices of fish products have risen rapidly both at the processing and consumer levels. The industrial selling price of fish products for Canada has risen 35 per cent from 1956 to 1963, a larger percentage than their substitute products. Amongst the substitute products beef products experienced the largest gain of 27 per cent for the same period. Consumer prices of fish products increased 24 per cent for the same period while food prices generally increased only 17 per cent and again the prices of meat and poultry products did not rise as rapidly as fish products.

Almost 80 per cent of the 1964 total market value of fish products was in fresh and frozen production. This compares to a 64 per cent figure in 1954 (Table A-5). A large proportion of the increase in fresh and frozen production has resulted from the increase in fresh and frozen shellfish products notably scallops. All other fish products have declined either absolutely or relative to the total market value of fish products. The market value of cured fish products has been fairly constant since 1954, but their significance has declined from nearly a quarter of the total market value to 14 per cent. Canned products have declined to a position of little importance. Other products including by-products have increased in market value and have

maintained the relative position in accounting for approximately seven per cent of the market value of the output of the industry.

Employment in the fish processing industry has declined slightly from the early 1950's but in the last five years the trend has reversed into small but steady increases. Approximately one quarter of those employed are women. The largest part of total employment is in the production of fresh and frozen products. The number of persons engaged in producing cured fish products has declined to approximately three to four hundred persons.

Productivity in the processing industry has increased. The net value of output per worker per year was \$3,689 in 1957, and \$4,457 in 1963. This represents an increase of 20.8 per cent during the six year period.

The demand for individual fish products has been mixed. The demand for cured products has tended to decline while the demand for fresh and frozen products has risen. The rise in total demand has been principally the result of increasing population. The per capita consumption of fish has risen in Canada to approximately 15.5 pounds per person per annum, (the rise was the result of large gains in fresh and frozen), while in the United States annual per capita consumption has been approximately 10.5 pounds per person.

The principal markets for Nova Scotia's fish products are the domestic

market, United States, British West Indies and Latin America. The Canadian market has become more significant as exports have declined as a percentage of output (Table A-7). In 1963, exports amounted to 38 per cent of production with the United States being the largest export market receiving over one half of Nova Scotia fish product exports (Table A-8). The British West Indies and Latin American markets accounted for 43 per cent of the exported value in 1963, the exports consisting almost entirely of cured fish. Nearly all of the cured fish production in the Province is exported.

Chapter III

PROBLEMS, POLICIES AND POTENTIAL FOR FUTURE GROWTH

The potential of the fisheries sector of the Nova Scotia economy is considered to be large and the outlook for future expansion has improved in the past few years. However, at the same time as expansion and growth are occurring, the industry's problems have become more sharply defined. Before discussing these problems in more detail, it becomes necessary to get an overall view of the sector's potential in terms of the necessary guidelines needed to evaluate policies aimed at realizing this potential. Such guidelines for the sector must be consistent with those established by the Planning Board for the economy as a whole.

Strategy for Fisheries Development

The sources of raw material for the industry are the fishing grounds of the Northwest Atlantic. Unlike other resource-based industries the fishing industry cannot own or lease its source of supply. Therefore, Nova Scotia is in direct competition for fish with other fishing nations and provinces. Since the physical supply of fish is limited, and for many species the present total catch of all nations fishing in the Northwest Atlantic is close to the maximum possible, a continued expansion of the Nova Scotia fishing industry depends in part on its ability to "out-fish" other nations and produce competitive products. This will require increased utilization of the fisheries resource, increased economic efficiency, and expanded markets. A more

detailed discussion of each of these topics is necessary to point out the strategy that should be followed to promote continued growth of the fisheries sector.

Resource Utilization - There are two principal ways of increasing resource utilization. The first method requires developing products and markets for fish which are presently considered of no commercial value to the industry in Nova Scotia. Some of these species are presently utilized by other nations to a limited extent. The other method is increasing the proportion of each fish used. In many species only one-third of the fish is packaged for human consumption. The remainder goes into the by-products industry to produce oils and meals, or is wasted. The amount of waste that does not reach the by-products industry is believed to be substantial. The goal of complete economic utilization should be pursued.

Economic Efficiency - There are several means by which Nova Scotia can improve its economic efficiency. These include labour, capital, technology and the overall structure of the industry. An improvement in the economic efficiency of the industry is dependent on improvements in these factors and in improvements made in combining the first two - labour and capital.

As in any industry, an increase in the level of technology requires a labour force of greater and more

specialized skills. In the Province's fishing industry, especially in fishing, labour force training has not kept up with advances in technology. The present educational level of fishermen is less than half the national average for all occupations. In the past, there have been no facilities available in the Province to provide the necessary training. This low level of education reduces the labour force efficiency in yet another aspect. Fishermen tend to be men of habit and custom, showing tendencies to resist the introduction of modern methods. With increased education and training this tendency would be reduced making the labour force more adaptable and more efficient. While the education and training of fishermen has been stressed, to a lesser extent it applies to the labour force employed in processing.

Another important factor hindering the efficiency of the labour force, primarily those fishing, is the prevalence of underemployment. Underemployment in fishing has been traditional. In the past several years only one-quarter of the total number of men fishing worked more than ten months of the year. Factors affecting underemployment are numerous, e.g., lack of labour mobility, unemployment insurance policies, a combination of vessel size and weather, and the seasonality of the different fisheries due to biological habits or government regulation. Since a large proportion of Nova Scotia fishing ports are not affected by ice, year round fishing is possible with the use of larger vessels. The removal of underemployment will require an increase in labour mobility along with more job

opportunities outside the industry; correction of government policies discouraging maximum fishing effort, especially unemployment insurance regulations; a change in the fishing habits of inshore fishermen; and the use of more adaptable equipment.

The development of processing and fishing technology has made possible an increase in the sector's efficiency. However, it is doubtful if the sector has made the maximum use of technological advances. In order to accomplish this in the future, certain factors will have to be corrected. The first of these has been mentioned already, namely the need for improving the quality of the sector's labour force through education and training. The structure of the Province's industry is another factor. The many small scattered operations, both fishing and processing, are plagued by the lack of capital to establish new techniques; insufficient knowledge of new developments and techniques; a volume of production too small to employ new technology; and in many cases the lack of a progressive attitude and the poor quality of managerial skills. In order for the industry to make the maximum use of existing technology, improvement in these factors is necessary.

Apart from improving the utilization of existing technology, industry must make every effort to improve its own program for developing new technological innovations. Here again the prevalence of many small firms has retarded industry's contribution to fisheries research and development; as a result, the federal government has assumed the major role. In

the future the federal government will continue its role, but the industry will have to do more of its own research and improve its co-ordination with government to achieve maximum results in productive efficiency.

Improvements in the overall structure of the industry would produce large benefits in terms of economic efficiency. More specifically, this refers to the size of the productive unit (vessel or plant), geographical distribution, the allocation of capital between vessels and plants, and the allocation of capital between different products and fisheries.

The present locational distribution of the industry is characterized by a few major centres and a large number of small scattered centres. Future development should be aimed at concentrating the industry at a limited number of locations where the maximum economic advantages could be obtained. Harbour facilities, transportation facilities and other services could then be provided at a minimum cost. Industry's cost would be lowered and the quality of services improved.

Associated with the locational distribution is the size of the production units found in the Province's fishing industry. The productive unit in the processing industry varies in size depending on the type of products produced. Those plants producing frozen products are generally larger and more capital intensive than the plants producing cured fish. However, in both cases there are many small plants. Except in the case of

specialty products, these plants will have to grow larger or eventually leave the industry as the small operation is inherently inefficient.

The structure of the fishing operation is characterized by an inshore fleet generally too small to fish the year round and an offshore fleet which is growing in both number and vessel size. One of the inshore fleet's problems, which must be overcome before an efficient operation emerges, is the large amount of capital tied up in the form of vessels and gear which is not being used to its full potential. The inshore fleet must become more adaptable so they can move their equipment from one fishery to another and be able to fish more months during the year.

The offshore fleet provides the major opportunity for increasing the growth of fisheries production. Every encouragement must be provided for the fleet's continued expansion and modernization.

Markets - In order for the sector to expand, it is not sufficient to have increased resource utilization and economic efficiency in production. Expanding markets must be provided.

In North America the total annual per capita consumption of fish and shellfish has tended to remain relatively stable. Market expansion has followed the growth of population in both the United States and Canada. In the short run this pattern will probably continue. The long

term goal should be to increase the per capita consumption. This will require aggressive advertising, new products and improved quality.

The principal products produced by the sector are fresh and frozen, cured and canned fish, and fish by-products. The sector has undergone a change in the relative importance of products produced; the most notable trend being to fresh and frozen. There has been a decline in cured products mainly due to shrinking markets. This decline will probably continue until they reach the status of specialty products. Canned products, while never very important in the Province, have suffered the same fate. The remainder of this section will deal with fresh and frozen products although much of the discussion also applies to the other product forms.

As in all industries, the fishing industry has witnessed an increase in the amount of processing carried out on the raw material. This trend should continue. However, since over half of the fresh and frozen production is exported to the United States, most of it being in a semi-processed state, further increases in processing partly depend on the relaxation of the existing U.S. tariff barriers on highly processed fish products.

There are many methods for expanding markets even with the existing tariff barriers. One of the most important is the improvement of quality. This implies not only good quality, but consistent quality. Along with improved quality, there are other important aspects such as

dependable deliveries, more aggressive advertising and an increase in product development. Policies and programs should be designed to stress these factors. However, the present structure of the industry is a deterrent to the pursuit of these goals.

In summary, the fisheries sector should be striving for increased resource utilization, a better educated and trained labour force, less underemployment and larger productive units in fewer locations. The key to the future of an expanding fisheries sector lies in improved education and industrial structure, expanded markets and increased processing.

Recommended Policies

The Committee spent the majority of its meetings discussing those policies it felt would be best suited to encouraging the sector's economic growth in the direction outlined. Its recommendations have stressed education and training, research and increased co-operation between all agencies involved, both at the industry and government levels.

The following detailed discussion of the Committee's views on the development of the sector and the recommended policies for faster growth are presented in two parts. First, those policies primarily concerned with the labour force, education and training, conservation, research and financing aspects of the fishing operation; and secondly, the labour force, financing, production and marketing in the fish products industry.

Since the recommendations resulted from Committee meetings held prior to the end of 1964 a report on the progress of some of the more specific recommendations has been included. The time lapse has also necessitated the rewording and updating of several. All of the recommendations made by the Sector Committee which were submitted to the Planning Board have been included. Those passed and accepted by the Planning Board have been marked with an asterisk * and a list of these recommendations appeared in Appendix B of the Voluntary Planning Board's "First Plan for the Economic Development of Nova Scotia to 1968". They are also set out in Appendix C to this report.

Primary Fishing Industry

There appear to be two important barriers which are inhibiting the growth of the primary fishing industry in Nova Scotia. The first of these is the problem of personnel. There is a need for educating and technically training the men presently engaged in the inshore and off-shore fisheries, as well as the need for recruiting young fishermen. The second barrier to growth in the industry, and related to the first, is the problem of raising the productivity of the fleet. The increase of foreign fishing vessels on the fishing grounds together with the recent expansion of our own fleet has aggravated this problem. To improve the catches of Nova Scotian fishermen there is a need for better fish-finding techniques and conservation measures.

Education and the labour force - The Committee, studying the labour force problem, described the finding and training of fishermen as a "major problem" facing the industry. There is a shortage of young men entering the labour force. This shortage is showing up particularly in the availability of engineers and deckhands. Presently men trained in diesel engineering at vocational schools are going into industrial rather than marine diesel engineering. With regard to remuneration, the Committee felt that the attainable financial rewards were not well recognized, and suggested the possibility of improving the situation through appropriate public measures. Up until now, the captain, assisted by vessel owners, has been responsible for recruiting a crew, but due to the present shortage of trained men, the committee recommended that:

- a. Representatives of industry and government should continue to meet for the purpose of establishing a program of on-vessel training for those fishermen who cannot attend the Pictou school;*
- b. Immediate study by industry and government should be given to upgrading the presently proposed qualifications for licensing skippers, mates and engineers; a definite date should be established for the implementation of these qualification requirements;*

- c. A team of industry and government people should give talks at regional high schools in the province on opportunities in the fishing industry;* and
- d. The vocational schools should point out opportunities in the marine field; at graduating time a representative from the fishing industry should present the future in this field to the graduating class.*

The rapid advances in fishing technology have resulted in the investment of large sums of capital by the fishing industry in modern vessels. These investments were made to increase the productivity of the fleet and to decrease the unit cost of production. The degree of improvement, however, is contingent on the efficiency of the men handling these vessels. To date, the fishermen have little or no vocational training in their occupation. They have learned their job by experience and from those who have gone before them. In the past there were no facilities in the Province where they could acquire the proper training. As in other industries, technology has progressed to the point where productive fishing no longer depends on the skill which may be acquired on the job. Certain fundamental training is needed for those fishing as well as for those operating vessels so that the maximum potential of modern equipment and technology may be realized. The misuse of modern equipment due to the fishermen's lack of training results in costly breakdowns and delays. With the proper education and training it is

thought that they will be more willing to accept new ideas, be more adaptable and thus improve their efficiency.

The Committee assessed the established fisheries school at Pictou. The school provides eight week courses in engineering, navigation, and fishing gear technology. The Committee felt that the industry should work with the school to create interest in the project and persuade people to enroll. The provincial government has worked out an arrangement whereby men receive their board plus a small spending allowance.

The upgrading of those men presently fishing is of great importance. The sooner this can be accomplished the better off the industry will be. To date the recruitment of trainees to take courses at Pictou has been less than desirable. The principal reason for this is the tremendous growth of the trawler fleet and the shortage of skilled men to operate it. The school, which is not operating at its potential capacity, is not turning out enough men to meet this growth in the trawler fleet. Any experienced men available are used to man the new vessels with the result that no experienced men are left to replace those who would like to leave their vessels to attend the Pictou school for upgrading. The Committee felt that the overall problem would be further alleviated by having an on-vessel training program similar to those used in manufacturing plants. This would not replace the Pictou school, which is doing a good, if not yet complete job. By combining the two programs of on-vessel training and

a land-based school, complementary, flexible, and well rounded training programs could be established.

With the growing congestion on the fishing grounds and the increasing complexity of fishing vessels and gear, the committee felt it was necessary to license skippers, mates and engineers to assure a minimum standard of competency. It was thought that the proposed qualification standards were too low and therefore should be raised. The benefits of licensing, using higher standards, are many; for example, men below these levels would be encouraged to go to school and increase their skills, insurance rates on vessels would be reduced, vessels would be operated more efficiently and equipment would be less subject to careless use.

Since these recommendations were made the manpower problem has continued to be of utmost importance as the deep sea fleet continues to expand. The provincial and federal governments are actively participating with industry for a solution to the problem. Committees have been established to study its various aspects. Study of improved qualifications for skippers, mates and engineers has been undertaken. Expanded efforts are being made to recruit more men for training. The provincial government is reassessing its own program with respect to its training centre at Pictou with the hope of expanding its training efforts and instituting any changes which seem desirable. Industry is also at a stage where it will be taking a more active role in training. Examples of these efforts are already evident. Industry and government have

co-operated in initiating an on-vessel training program as recommended by the Committee. A net loft has been established at Lunenburg for the instruction of fishing gear technology. This is a first step in what is hoped to be an expanded program of taking training facilities to areas where those who will use these facilities are concentrated. However, only certain types of training can economically be established on a regional basis. Training which requires expensive capital facilities can only be provided at a central location.

A problem with much of the research work which is carried out in Canada is that the available scientific information is not being presented in language which is comprehensible to the men who would derive the most benefit from it, i.e., the trawler captains, mates, etc. A system of publications should be developed to remedy this situation. It was further proposed that a conference should be held to get skippers and research men together to exchange ideas. It was felt that both groups would benefit from such a meeting. In addition it was suggested that an authoritative person or persons should be employed by the Fisheries Research Board whose sole responsibility would be to function as a scientific liaison officer with the fishing industry. Since this recommendation was made a person has been employed by the Research Board to serve this function. It was generally concluded that the fishing industry should give closer attention to research and its findings; and it was recommended that study should be given to holding a bi-annual meeting of industry

representatives and scientists. The purpose of such a meeting would be to discuss problems and research in both phases of the industry: fishing and processing. Canada has a very able group of fisheries scientists but the fishing industry does not make maximum use of their work. At the present time there is considerable scientific information in the areas of marine biology, new fishing methods and new experimental gear that should be demonstrated to the fisherman so that he can apply this knowledge and techniques to improve his efficiency.

The Planning Board on examining these recommendations noted that the amount of extension services provided to the industry by the provincial government was not particularly large when compared to those services provided to agriculture and others. The Board, therefore, recommended that these services to the fishing industry be expanded by the provincial government.* The Department of Fisheries has expanded these services since this recommendation was made and will continue to do so in the future. This is a long term expansion and can only be proceeded with as fast as the right type of personnel become available.

Conservation, research and development -

The basic area of concern to the fisheries sector is the maintenance, protection and expansion of the supply of raw material. This concern was expressed not only in terms of the quantities of fish in the sea, but also in terms of the share of the supply available to Nova Scotia vessels in view of foreign competition, and in

terms of more efficient methods of catching fish. The Fresh and Frozen Segment Committee recognized the trend toward gradually diminishing landings in relation to investment and effort. They recognized, as well, the extremely intensive fishing of particular species. The committee did not rule out the idea of some industry action and co-operation on the overall problems. They were strongly of the opinion, however, that government agencies are far better able to act in these fields. While worthwhile beginnings have been made in joint industry-government research and development work, it is recommended that considerably more emphasis should be placed on these efforts in the future.*

The Committee members were appreciative of the considerable amount of scientific and development work now being supported with public funds, but they felt that a need exists for substantial expansion of this work in certain fields. In the areas of maintenance and protection of the supply of raw materials, the Committee specifically recommended investigation of the effects of intensive exploitation of certain species, notably scallops, the adoption of the Maine jumbo lobster measure and cancellation of the fishing license of any violator of the Fisheries Regulations.

The Committee also realized that the problem of depletion of fish stocks required the co-operation of all nations. The Committee approved the steps taken by the International Commission for the Northwest Atlantic Fisheries to regulate mesh size, but since there is no common

enforcement, they support the recommendation that an independent body be set up to inspect and enforce I.C.N.A.F. mesh regulations.

To expand the supply of raw material new fishing grounds should be sought out and research work conducted into the greater utilization of other species, such as dogfish and shark. Furthermore, the lucrative shellfish markets should be taken advantage of by increasing the yearly production of these species, through research and development in the fields of nutrition, disease, reclaiming of stocks from polluted areas, transplanting, and other factors pertinent to "farming".* This was specifically directed to the Fisheries Research Board. Since this recommendation was made the government has initiated development work to assess the commercial possibilities of two shellfish species: the spider crab and the pink shrimp.

The possibility of greater development in the Nova Scotia off-shore herring fisheries should be investigated as a means of furthering the by-products industry.* Due to the successful prosecution of the herring fisheries by Norway, it was suggested that a Norwegian research vessel be permitted to operate from Nova Scotia ports for a period of one year. The Norwegians would not only check the available quantity and movement of herring, but would test their equipment under Nova Scotia conditions. While the use of Norwegian vessels was not carried out, the Provincial Department of Fisheries with the co-operation of its federal counterparts has undertaken a project to test

vessel design capabilities in converting scallop draggers into herring seiners. Continuing work is being carried out by the Department to encourage the expansion of the herring industry. The work has had good success to date with the establishment of several large scale reduction plants with capacities from six hundred thousand to two million pounds a day and a fleet of about twenty purse seiners. The outlook for future development is very encouraging.

There may be a good opportunity of establishing a whaling industry in Nova Scotia. One Nova Scotian boat engaged in the hunt in 1963, but in order to determine the feasibility of such a venture, a fleet of three or four boats should participate. As such boats with experienced crews are not available locally, it was suggested that three Norwegian whaling boats be permitted to operate and land their catch in Nova Scotia. After working for a period of one year these boats would be in a position to advise if whaling was commercially suitable for Nova Scotia. If the trial venture proved successful, Canadian boats could be built and manned by Nova Scotians. When the Committee made this recommendation the government adopted it and a Norwegian boat was brought over in the summer of 1964 and its success led to three local ships taking part in the fishery in 1965. In view of the success of this venture, continued efforts should be made to expand whaling and its land based facilities in Nova Scotia.

Apart from education and training the Vessel Owners and Operators

Segment Committee felt there were other problems the alleviation of which could increase the productivity of the fishing fleet. The effect of the unemployment insurance program for fishermen, as it is carried on at present, was described as a "major" problem. While the committee was not opposed to the principle of such benefits being available for fishermen, they felt that the program's operation has been much abused and that it has seriously aggravated the problem of manpower availability at particular times of the year. Committee members were familiar with the recommendations of the Senate Inquiry Committee (Gill Report) which investigated the entire unemployment insurance program and strongly urged that the recommendations with respect to fishermen's benefits be adopted by the Unemployment Insurance Commission. These recommendations would encourage fishermen to exert maximum fishing effort at all times.

The next problem discussed was fish location. Improved methods and techniques in locating fish are becoming more urgent as foreign competition on the grounds increases. The Committee concluded that all the present detecting methods are known to the industry and are being employed where it is found economic to do so. The need is in the research and development of new techniques and equipment in conjunction with more research on the life cycles and habits of fish, especially in the field of locating fish populations at certain times of the year. A step in this direction would be the increased use of the Federal Dept. of Fisheries' vessels, such as the A.T.

Cameron for this purpose. These vessels should do more reconnaissance of the whereabouts of fish and communicate this information immediately to the Canadian fishing fleet. The present written reports arrive too late.

These vessels were not designed for scouting but for scientific work on fish populations; thus they are too expensive to use solely for scouting. Their function is to provide information on fish populations to I.C.N.A.F. as part of Canada's commitments to this organization. However, it was felt that in the course of their work, they obtain valuable information on fish movements and concentrations which should be supplied immediately to the Canadian fleet.

It was also recommended that additional vessels specifically designed for scouting should be built and operated to supply this much needed information to the Canadian fleet.

The Committee felt the first step to improve fish location techniques would be to make accurate hydrographic charts available to fishermen. The existing Canadian charts were considered inadequate and as a result American charts are used on most vessels. The Committee endorsed the present action of the Canadian Hydrographic Service which is now designing new charts for fishermen and recommended that these charts be completed as soon as possible.

The Committee learned of an experimental device, being developed at the National Institute of Oceanography in

England, for determining the relief and geology of the ocean floor. This equipment would speed up the charting of conditions on the ocean floor, and by using these charts, the fishermen would be able to locate likely fishing grounds and determine the best type of gear to use in new areas. Therefore, it was recommended that the Canadian Committee on Oceanography watch the development of this research since it should prove extremely valuable to Canadian fishermen.

With regard to the development of new gear and techniques, it was noted that innovations in this area most frequently emanated from foreign countries, and that the industry in Canada lags behind its competitors in this field. Committee members attributed the lead of the foreign fishing interests in this respect to greater effort on the part of their government agencies. However, it was agreed that the best approach to this problem was to combine the efforts of government and industry in an expanded program of developing and adapting new gear techniques.*

One specific experimental fishing technique, which should be developed further, is the use of a mid-water trawl. Success with this equipment would permit fishing in areas where heavy seas or rough ocean bottoms discouraged the use of other gear. A study of mid-water trawls along with other types of trawls has since been carried out and demonstrations are being conducted.

The area of ancillary facilities was discussed, covering such matters as

the provision and availability of harbour facilities. Where possible, appropriate government agencies were consulted regarding their policies; specifically, the federal Departments of Public Works and Fisheries, and the provincial Department of Fisheries.

The representative of the Department of Public Works interviewed by the Committee clarified the policy on provision of harbour facilities. It was stated that an informal committee, composed of representatives of the Public Works and Fisheries Departments, and the Provincial Department of Fisheries, recommend on proper expenditure of public funds, bearing in mind certain broad principles. Two of these are the increasing desirability of centralization and the abandonment of "uneconomic" installations. An effort is made to keep the program in line with trends in vessel construction and in the development of shore (processing) facilities. The representative indicated the desirability of industry's opinion in these decisions.

The interviewing committee was appreciative of the efforts of the inter-departmental group referred to, but was critical of the degree of political influence in decisions on public works expenditures. The members felt, as well, that there should be a still greater coordination between the programs of vessel construction and the development of harbour facilities. The view of the Committee is that there is a lack of suitable installations and an overcrowding of wharf facilities in some ports in the province, and that an improvement in this

condition would contribute to an increase in fish production.

Related to this problem is the shortage of ship hauling facilities for repairs and overhauls of fishing vessels. This has become increasingly important since the expansion of the fleet has put great pressure on all available facilities for ship repairs. Fishing vessels cannot afford to be kept out of production waiting to get a berth for repairs. The Committee could not agree on the precise steps which should be taken, but felt that it is imperative that this problem be solved if there is to be an efficient Nova Scotian fleet operation.

On board the fishing vessels, there is the problem of handling undersized and inedible fish. Bringing such material to port requires considerable space as well as contamination problems to contend with. The value of offal, used in the production of fish meal, is six to eight dollars per ton and requires a 55 cubic foot storage space on board ship while being transported to the plant. It was felt by the Committee that fishermen in Nova Scotia failed to recognize the value of offal. An educational and research program should be carried out to encourage a greater utilization of these waste products. The possibility of a digester being installed on board the larger fishing vessels as well as investigations into other uses and markets for inedible fish was suggested by the Committee.

The methods of handling fish from ship to shore is a possible area for

reduction of production costs. For the most part this is done by hand with buckets and hoist. In some situations the use of conveyor belts seems possible. The Committee recommended further study of this problem.* Industry is presently working on this and some progress has been made.

In the lobster industry, due to the market demand which in recent years has been strengthened by overseas sales, the problems are somewhat different as the fishermen are now harvesting as many lobsters each year as present biological limits allow. The Lobster Segment Committee concluded that the main problems besetting the industry are those of efficiency and conservation. It was the opinion of the committee members that the lobster fishermen were using too many traps. It was generally agreed that the same catch could be landed with less gear. In order to solve this problem it was felt that the Federal Department of Fisheries should be asked to organize a series of district meetings, the purpose being to discuss and make recommendations for further discussion at a general meeting. Representatives of both the processors, and the fishermen, should be invited to attend. Then a survey should be carried out by zones with a view to ascertain the opinions of the fishermen on the limitation of the number of traps and other forthcoming recommendations. If unfavourable, some steps should be taken to educate the fishermen with the ultimate view of voluntary enforcement.* Steps have been taken by the Department to encourage voluntary reduction in the number of traps used. Efforts are also being made by the

Provincial Department to divert young lobster fishermen, through training, to the deep-sea fleet. To protect the bona fide lobster fishermen it was suggested that fees for lobster licenses be raised and issued only to fishermen using fifty traps or more.

Financial aspects of development - There was little criticism of the policies of the Fishermen's Loan Board for the financing of vessels. Neither was there any strong criticism of the subsidy program provided by the Government of Canada, although it was recognized that this was initially for the benefit of the shipbuilding industry rather than the fishing industry.

Fish Processing and Marketing

The barriers to growth in the fish processing industry of Nova Scotia are in the areas of labour, financing, production and marketing. The universal problems of the lack of qualified personnel and low cost capital deter growth and expansion of capital equipment in the various segments of the fish processing industry. Additional problems of inadequate raw material supplies and higher labour costs adversely affect production and sales in cured fish products and to a certain extent in the by-products segment. What is needed to help insure a continuous growth in all phases of the industry is aggressive marketing and product research programs.

Labour force - The nature of the problem of plant personnel was defined as a lack of workers with formal training in broad job principles. First-line management people, such as foremen and supervisors, in many cases attain their jobs because they have perhaps some better sense of responsibility, and better natural qualifications relative to the general plant labour force. This necessary method of selection does not always guarantee a desirable level of performance. It was considered, therefore, that a program of formal training for suitable candidates would be of decided value in up-grading this class of employees.*

The Fresh and Frozen Segment Committee was critical of the shortage in the supply of formally trained and qualified technical personnel. Frequently, the only qualification held by personnel, such as refrigeration mechanics, is the experience gained on the job in a particular plant. Their competence and mobility are thus limited by a lack of theoretical training in the principles of commercial and industrial refrigeration. The committee reviewed existing programs of technical and vocational training with personnel of the Vocational Education Division, Department of Education and of the Department of Labour, who described at Committee meetings the services and programs of their organizations. Ways in which industry and government might cooperate in carrying out appropriate training schemes were discussed, with some reference to the problems of employee remuneration during the training period.

Representatives of the government agencies referred to indicate, that provided the nature and extent of the training problem in a given situation is clearly defined, a solution can generally be found under existing programs. The Committee concluded that the present services were adequate and that solutions to the industry's manpower training problems were available provided the industry sought them out in the proper way.

The cured fish segment of the industry has a problem in the remuneration of its labour force. The present wage rates are difficult to maintain at the present low operating margins, and improving living standards in Nova Scotia must result in upward pressure on labour costs.

Financing - The dominant theme of discussion on facilities was one of finance, and in particular the adequacy, consistency and effect of the schemes of financing and financial assistance sponsored by governments using public funds. To familiarize itself with the policies pursued by certain public and private lending agencies, the Fresh and Frozen Segment Committee interviewed representatives of the Industrial Development Bank, Industrial Loan Board of Nova Scotia, and Roynat Ltd. The members of the committee also referred to the experience of their companies in dealing with various agencies.

Two general conclusions emerged from the discussions. The first was that while funds are available at satisfactory interest rates for financing the means of

production (vessels), the interest rates on money for processing facilities (plant and equipment) are too high in most cases. The second conclusion was that there are inconsistencies in the policies of the various lending agencies, resulting in too widely divergent terms of financing being made available to individual businesses. Furthermore, it was felt that there is a general lack of co-ordination among the various government programs in support of the industry; for example, it was pointed out that a program of assistance in the construction of vessels can result in existing harbour facilities becoming inadequate, and in a build-up of pressure on processing facilities. It was considered that governments should recognize these resulting pressures and make provision of capital at reasonable rates to permit the necessary plant expansion. The Canada Inspection program was cited as another example of government policy creating a need for capital to bring plants up to required standards.

With regard to plant financing, the Committee generally agreed that processing firms should not expect public funds to be made available to them at public cost. Notwithstanding, they were critical of the difference in policy among the various provincial government agencies and authorities, and considered that there should be a rationalization of policies and standardization of terms.

The above discussion on financing has been rendered out-of-date by the activities of various agencies since the Committee's assessment took place two years ago. Such activities include the

work of the Atlantic Development Board in providing funds for water supplies for several plants, a revision of the terms of reference for the Industrial Loan Board of Nova Scotia and the provision of capital grants for new processing facilities in designated areas under the Area Development Agency. The Committee will have to assess these new developments at a future date.

Production - In the area of production, the salt fish industry in Nova Scotia faces numerous barriers, probably the most important being the lack of an adequate supply of salt bulk. There has been a continuous decline of local production in Nova Scotia. The salt cod exporters depend almost exclusively on Newfoundland production, except in the case of boneless fish which is limited by the lack of an adequate supply of good quality fish out of pickle. As a result of this dependence on Newfoundland, Nova Scotia producers have little or no control over the quantity, quality and price of salt bulk. They are in competition with Newfoundland processors and exporters and more recently European buyers for these supplies.

The shortage in the supply of salt bulk is partly the result of the declining inshore fish stocks and the competition from the relatively prosperous fresh and frozen fish industry. For example, the former salt bulk area of Labrador has recently acquired several frozen fish plants to the detriment of salt bulk production.

The volume of salt fish produced is also adversely affected by the present method of administering unemployment insurance to fishermen, which discourages maximum fishing effort.

The Salt and Pickled Fish Segment Committee felt that artificial means of stimulating salt fish production should not be advocated in an attempt to counteract any natural economic trend toward fresh and frozen fish production, when such production is a more economical means of exploiting our fishery resources. The salt fish industry tends to act as a stabilizer on the whole fishing industry by taking up the excess fish that the fresh and frozen industry cannot use. The aim of the Province should be to use all the available catch in the most economically efficient manner.

Hindering the solution of the supply problem is the present situation in coastal shipping. Nova Scotia exporters depend on these vessels to deliver salt bulk from the fishing ports of Newfoundland. The present coastal fleet, built up by the acquisition of old fishing schooners, is being depleted through shipwrecks and other losses. With this source of cargo vessels rapidly vanishing another must be found where vessels can be acquired at a reasonable cost. The committee felt that some sort of assistance should be given the coastal freighters. A further recommendation was proposed to the Provincial Government suggesting that it support those phases of any Newfoundland or Federal program which would tend to increase production of Newfoundland salt fish.

One major problem in the salt fish processing section of the industry is the present excess drying capacity. This was brought about by the decline in the supply of salt bulk and the financial assistance provided by the government in building drying facilities. It is recommended that the government discontinue any further financial assistance for the installation of fish driers.

Because of the increase in the standard of living the salt fish industry faces increased labour costs. These costs are hard to meet due to the limited amount of mechanization possible and the fact that the industry produces a low value product which is marketed under heavy competition from subsidized European producers. These factors have resulted in very low operating margins. The imposition of a federal excise tax on materials used in processing has aggravated the situation. The Committee recommends that steps be taken to exempt all materials and equipment used or consumed in the production of salt fish from federal and provincial excise taxes, to enhance the ability of the salt fish producer to compete in the world markets. These taxes are presently being reduced on equipment.

The Committee learned that facilities are available in Glace Bay to produce liquid nitrogen which is used for refrigerated transportation. It is also used in the United States for freezing food products, including fish. With the present techniques the cost is too great to apply it to a relatively low value product. It is presently used mainly in the production of high valued specialty

products. This process freezes products at about -300°F resulting in faster freezing and markedly increased quality. The Committee recommended that a study be initiated to provide more details and explore the possibilities of further developing this process for use in the Nova Scotia fish processing industry.*

In the by-products industry, there is also a shortage of raw materials to keep plants (other than herring reduction plants) operating at a high productive level. A study should be initiated to establish the amount of waste presently available which is not reaching the by-products industry. It should be determined if this waste may be economically used in the industry.* The major product, fish meal, faces heavy foreign competition mainly from South America. It was suggested that increased attention be given to the study of more efficient machinery, especially in the dehydrating process, to enable Canadian manufacturers to remain competitive.

Marketing - Due to the different products and markets of each segment the discussion of marketing will be presented on a segment basis.

The Fresh and Frozen Segment Committee dealt with several problems in the marketing of their products; these resolved themselves into the broad categories of product quality, promotion and distribution.

The Committee recognized the

vital necessity of maintaining and improving product quality if the industry is to attain an optimum degree of development. They discussed the matter from the viewpoint of quality at all levels through production, processing, and distribution. They recognized that the processor has an obvious vested interest in quality, but they also looked to the federal government's Canada Inspection Program to provide the necessary stabilization and standardization throughout the industry. The Canada Inspection Program, however, is focused mainly on controlling the quality of fish as it moves through the processing plants. There was a division of opinion in the segment committee as to whether it should be made applicable to fish as it is handled and stored in vessels. This is a problem which most frequently occurs in dealing with the inshore fishermen. Committee members representing major processing firms, and having close control of vessels, did not consider this necessary. Those who operated plants of more modest size, and who are dependent on independent vessels, felt that some enforcement of quality control was desirable and that penalizing the fishermen for lack of it by means of the price offered him, has not always proved an effective control method. The problem is made more difficult because it is often hard to determine if the fish have not been properly iced. Lower quality will not become apparent until several days after they are landed and sold. However, since this problem was common throughout the Province and has an adverse effect on fish quality, the Sector Committee recommended that necessary legislation be passed to ensure that all

fish landed are properly iced under sanitary conditions. Armed with this legislation federal fisheries officers would then be able to help control the quality of fish that enters the markets or plants. Along with this legislation an educational program should be instituted to demonstrate proper fish handling techniques. The question of carrying quality control through to the distribution system is dealt with later. The general view of the committee was that Canada Inspection would provide a broad solution to most of the quality problems, provided that the authorities are able to make it compulsory through this segment of the industry.

It was learned by the Committee that much research work in the area of quality remains to be done in handling scallops, mackerel, poorly utilized species such as mackerel shark, and special aspects of the deterioration of groundfish and shellfish. It was hoped that this research could be undertaken, as many of the answers to the maintenance of quality are not yet known.

The discussions concerning promotion covered problems of advertising, new product development, and consumer education in the handling and preparation of fishery products. Again, the Committee recognized a degree of responsibility on the part of the industry and of the individual processor to maintain continuing promotional programs. They regretted, however, the inability of the industry generally to spend as much as is desirable on such matters. They recognized the regular and special efforts being made in these fields by governments at both levels,

and considered that their various advertising, products research and consumer service programs should be expanded. They saw the opportunity for cooperative effort between government and industry in these fields.

Discussions on distribution were focused primarily on maintaining quality after the fish leaves the plant. The main problem referred to was keeping the product at consistent temperatures. Committee members mentioned their own experience, as well as the results of government research on the effects of poor temperature control on frozen fish products. Generally, they were satisfied with the results of refrigerated highway transport, provided proper control is maintained during the loading period. Refrigerated rail transport has been improved. However, the distribution stage during which the product is subjected to the greatest temperature changes was said to be between carrier and warehouse, and during storage in the retail store. It was stated that because of the lack of proper control at these stages, fish which was of first quality at the time it left the processor's cold storage, may have deteriorated badly by the time it reaches the consumer. The Committee considered that it was now time for appropriate government agencies to examine distribution from the quality control viewpoint, and to enforce whatever regulations might be necessary to solve the problem.

In the matter of transportation the main concern of the committee was with the closure of provincial highways during the spring break-up period, resulting in

difficulty in moving fish to market. The Department of Highways was consulted on the matter, and while they indicated recognition of the problem, they did not think that any appreciable change could be made in the present policy. There was also concern over the adequacy of transportation services available to fish processors in western Nova Scotia for shipping products to the Boston area. The Committee referred these matters to the Transportation Sector Committee for further study and action.

Since almost all the salt fish production of Nova Scotia is exported, the Committee agreed that there are many problems encountered in this industry that cannot be solved by industry alone. The traditional markets of Nova Scotia have been the West Indies. These markets have declined for a variety of reasons. The unstable political situation, price controls in foreign countries and exchange problems are factors which are mainly beyond the control of industry and the Canadian Government. Increasing competition from fresh and frozen fish products, subsidized foreign producers, and the existing B.W.I. Trade Agreement all hamper the sale of salt fish which for years has had the traditional role of a poor man's food. As living standards increase in the existing markets the per capita consumption of salt fish decreases and consumer demands are diverted toward other food products.

At the present time there is little or no advertising being carried out to promote the consumption of salt fish in existing markets or to attract new

customers. It is urged that industry and government co-operate on a comprehensive program to promote the sale of salt fish. Television broadcasting facilities introduced in the past few years in Trinidad and Jamaica could be used for part of this program.

The problems of distribution center mainly around transportation and storage. The sailings to certain markets have been disrupted or discontinued, resulting in inadequate transportation facilities. Furthermore, the lack of cold storage plants in the West Indies has prevented orderly marketing and adversely affected the quality of the fish at the retail level. The recent spread of supermarket style retail outlets in the Caribbean area has also been detrimental to the sale of salt fish. It is recommended by the Committee that the Federal and Provincial governments encourage the development of new products and markets in salt and pickled fish to up-grade the image and to ensure a continuing demand for these products in the future.

The By-Products Segment Committee discussed the various marketing problems of such products as fish oils, fish flour and fish meal. The production of fish oil and fish meal has depended almost entirely on offal from fish processing but recent developments in the herring fishery have changed this to some degree.

Approximately 60-70% of the fresh groundfish landings end up in fish meal plants where plants are available. As production of white fish meal is limited to the volume of these fish

landings, some fish meal plants do not operate at their full capacity. The market for medicinal fish oils has been virtually eliminated by the development of synthetic dry vitamins and the demand for other marine oils has been influenced by the fact that a wide range of other oils and fats are available as substitutes. A great proportion of the total supply of marine oils is produced as a joint product with fish meal and with the increase in recent years of South American fish meal exports, Nova Scotia producers have faced heavy competition. The Committee proposed that detailed studies be carried out for new uses and markets for these products.*

The possibility of producing fish flour has been studied by many of the world's leading fisheries research laboratories, and its manufacture is proceeding in various countries. The Fisheries Research Laboratory in Halifax has completed its study on the processing of fish flour. The flour is produced under completely hygienic conditions and is refined to such an extent that it can be incorporated into almost any food. It was suggested that the Federal Department of Fisheries conduct a study to investigate potential markets for fish flour.

The Committee felt that transportation costs were an important problem facing the fish by-products industry. The Committee recommended that when the Transportation Sector Committee is studying the transportation problems of other segments those problems of the By-Products segment should be included.*

Statistics - In planning growth and measuring the past performance of the fisheries sector one important deficiency becomes apparent. There is a lack of significant statistics which are suitable for this purpose. At present production data is available but little information is kept on the capital employed by the industry. The Committee therefore recommends that the provincial Department of Fisheries maintain a registry of the fishing fleet of the Province requiring the size, capacity, type, age, value and the number of men employed on each vessel in the Province. A similar registry should also be established for fish processing plants, collecting similar pertinent information.* The Department has undertaken this project and part of the data has been compiled for vessels 100 tons and over.

CHAPTER IV

PRODUCTION AND EMPLOYMENT IN FISHERIES TO 1968

The Voluntary Planning Board has selected from several sets of projections, each based on different assumptions, one set to be regarded as targets for the Fisheries Sector during the first planning period.¹ These targets are as follows:

<u>Production</u>	<u>1968 Target</u>	<u>% change 1964 to 1968</u>
Quantity Landed	898,000,000 lbs.	+ 74.5
Landed Value	\$58,200,000	+ 37.1
Net Value		
Processing	<u>26,600,000</u>	<u>+ 27.9</u>
Total Value	<u>\$84,800,000</u>	<u>+ 34.1</u>
<u>Employment</u>		
Fishing	13,100	- 0.8
Processing	<u>4,600</u>	<u>+ 8.2</u>
Total Employment	<u>17,700</u>	<u>- 0.6</u>

Note: Complete set of targets are in Table A-9. All dollar values are in current dollars. Fishing employment is total annual employment. Processing employment is an average monthly employment.

¹These targets vary from those set out in the "Report on Progress, Overall Plan, Nova Scotia to 1968". The assumptions are similar but new and more up-to-date information has been used.

The projection of the total catch of fish is the key target as the others are primarily based on this figure. In estimating the target for future landings, expected increases in processing capacity and the size of the fishing fleet were considered. To arrive at a total estimate, landings were considered separately in three groups; groundfish, herring and other. It was assumed that groundfish landings would continue to increase but at a decreasing rate from the 1964 increase. Herring catches were expected to more than double over the period and as a result total landings will increase at a greater rate than ever before due to the significance of herring in relation to the total landings. "Other" species as a group were expected to remain relatively unchanged.

The same grouping was used for landed value estimates. A general assumption was made regarding fish prices. It was assumed that the trend of wholesale and retail fish prices rising faster than meat and other food prices could not continue. In the future they would have to come more in line with price increases of substitute products. It was further assumed that the price increases would be greater for landed prices than for market prices of the processed product. Groundfish prices were estimated as continuing to increase but at a more moderate rate than in the late fifties and early sixties. Herring prices were expected to rise slightly in the long term, while the group, other species, principally lobster and scallops in terms of value, were assumed to decline initially then rise slightly.

The estimates of net value of

processing were derived from landed value. It was assumed that the past trend of increased processing, that is, more of the catch being processed and processed to a higher degree, would continue. However, while this assumption may hold true for most species, the increase in herring which will go into meal and oil products will temper the rise in net value of processing relative to the increase in total landed value. The rise in net processed value relative to landed value will be moderated further by the above assumption of relative price increases.

In setting employment targets basic assumptions were necessary regarding productivity. Increased rates of productivity were used in both processing and fishing employment with the latter expected to increase more rapidly. This resulted in a slight decline in fishing employment.

The implications of these assumptions and targets are many. The projected rise in landings (other than herring) is greater than the expected rise in demand in the United States and Canada, so that in order to market this increased production Nova Scotia must increase her share of these two markets and/or establish or expand markets in other countries. To do this will require aggressive marketing and competitive prices, both with substitute products and other fish producing areas. This implies increased productivity. Productivity in fishing will have to come from increased training, more large modern vessels and more full-time fishermen. In the plant, productivity must be gained through new larger production units

and better techniques.

Since the stocks of fish are limited and all fishing fleets have access to them, Nova Scotia will have to increase its production through stronger competition with the fleets of other areas. This will require a larger fleet of vessels capable of fishing further afield with increased economic efficiency.

The acceptance of these targets implies the need for continuing capital investment in both the plant and the fleet at a greater rate than experienced in the past twenty years.

APPENDICES

- A. Statistical Tables
- B. Committee Members
- C. Board Approved
Recommendations



APPENDIX A

STATISTICAL TABLES

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TABLE A-1

PRINCIPAL STATISTICS, PRIMARY FISHING INDUSTRY

BOYA, BOLINA

YEAR	No. of Craft Over 10 Tons	No. of Fishermen	Landings		
			1950,000 lbs., Quantity (1)	Value 1950 (2)	Market Value \$1,000 (4)
1939	533	17,500	275.0	5,380	8,800
1947	750	34,500	324.0	15,200	26,700
1948	777	34,600	380.0	19,100	26,200
1949	825	34,900	369.9	19,700	38,000
1950	846	35,700	384.1	21,400	38,000
1951	885	35,600	381.7	21,300	40,000
1952	986	35,248	396.5	22,679	42,000
1953	834	34,814	371.0	21,928	40,000
1954	849	34,854	398.5	21,046	44,100
1955	860	34,751	425.4	23,582	47,200
1956	878	34,379	442.8	25,038	49,000
1957	900	35,265	439.7	23,384	45,000
1958	111	33,747	608.5	24,935	51,400
1959	131	33,012	645.3	27,112	51,400
1960	910	34,780	428.8	26,074	51,700
1961	877	35,578	439.7	27,741	54,000
1962	934	34,711	445.9	32,582	67,379
1963	982	33,487	427.1	35,228	52,721
1964	1,102	33,333	514.5	42,436	50,331

(1) Figures not available for 1959 and 1958 due to different classification used.

(2) Prior to 1958 there was a certain amount of duplication.

(3) Includes fish and shellfish only.

(4) Includes value of all products of the sea.

Source: USS 24-705

TABLE A-2
CAPITAL INVESTMENT, PRIMARY FISHING INDUSTRY
NOVA SCOTIA

Year	No. of Craft Under 10 Tons		No. of Craft over 10 Tons				New Investment in Gear & Vessels (\$'000)
	Sail & Row	Gas & Diesel	10-49.9T	50-99.9T	100-149.9T	over 150T	
1959	na	na	na	78	9	49	na
1960	3,909	5,133	673	78	11	48	na
1961	3,954	5,059	739	77	12	49	4,760
1962	3,870	5,173	772	84	20	57	7,807
1963	4,039	5,133	804	74	29	75	10,242
1964	3,746	5,059	890	89	32	91	12,416

Source: DRS 24-203

TABLE A-2
PRINCIPAL STATISTICS OF THE COMMERCE FLEET
NEWA, SLOVIA

Q - quantity landed in millions of pounds;
V - landed value in thousands of dollars

Year	Tonnage		Pollock		Halibut		Small Flatfish		Other		Total		No. of Fisheries in the Fleet
	A	V	A	V	A	V	A	V	A	V	A	V	
1939	107	1,374	37	636	7	40	5	411	14	75	177	2,003	-
1947	191	4,504	31	1,338	19	330	3	384	19	318	424	3,030	-
1948	176	6,450	56	2,574	21	378	5	425	26	492	286	10,300	-
1949	153	5,130	45	2,053	17	293	4	560	25	473	232	9,059	-
1950	161	5,444	46	2,194	12	324	41	1,289	19	453	276	11,148	-
1951	148	4,785	53	2,522	15	286	8	1,848	26	500	276	10,495	-
1952	149	5,338	51	2,524	24	444	4	958	33	759	294	11,133	-
1953	116	3,738	53	2,307	24	377	4	956	39	847	271	9,254	-
1954	130	4,594	68	2,730	29	434	5	1,024	26	805	398	10,676	-
1955	121	4,071	78	2,757	33	519	4	831	42	950	350	10,426	-
1956	130	4,431	88	2,993	32	546	5	1,151	41	1,106	339	11,356	-
1957	115	3,580	84	2,040	31	566	7	1,818	47	1,515	350	11,366	-
1958	117	3,743	67	3,068	43	738	6	1,840	44	1,328	49	11,847	-
1959	117	4,029	78	3,956	38	716	6	1,524	42	1,520	40	970	6,750
1960	101	3,480	63	2,778	47	993	6	1,578	52	1,802	39	1,627	6,582
1961	90	3,443	73	3,350	38	771	5	1,465	41	1,534	41	1,110	9,777
1962	98	4,043	71	3,573	49	1,304	4	1,493	35	1,579	35	1,014	9,768
1963	97	4,290	72	4,156	43	1,286	4	1,911	39	1,567	301	13,931	7,460
1964	104	4,641	69	5,394	46	1,533	3	1,130	37	1,126	346	16,397	7,430

Source: DSS 24-205

TABLE A-4

PRINCIPAL STATISTICS OF SELECTED FISHERIES

NOVA SCOTIA

(Q - quantity landed in millions of pounds)
(V - landed value in thousands of dollars)

Year	Herring			Mackerel			Swordfish			Lobster			Scallops		
	Q	V	No. of Fishermen	Q	V	No. of Fishermen	Q	V	No. of Fishermen	Q	V	No. of Fishermen	Q	V	No. of Fishermen
1939	27	176	-	44	416	-	2	186	-	15	1,649	-	1	58	-
1947	51	603	-	15	458	-	2	702	-	17	5,218	-	1	420	-
1948	43	602	-	13	501	-	2	861	-	18	5,485	-	1	382	-
1949	48	776	-	25	805	-	2	726	-	20	6,217	-	1	151	-
1950	40	605	-	20	695	-	2	706	-	22	7,031	-	1	281	-
1951	44	737	-	16	611	-	3	998	-	24	7,476	-	1	179	-
1952	48	774	-	11	572	-	3	898	-	23	8,016	-	1	382	-
1953	50	862	-	10	436	-	3	1,105	-	24	8,917	-	1	485	-
1954	32	453	-	13	513	-	4	1,138	-	23	8,902	-	1	464	-
1955	50	683	-	13	487	-	5	1,090	-	23	9,064	-	2	651	-
1956	51	746	-	11	398	-	5	1,295	-	22	9,268	-	2	1,003	-
1957	61	863	-	10	355	-	5	1,341	-	18	6,819	-	3	1,221	-
1958	103	1,486	-	8	381	-	5	1,439	-	18	7,356	-	3	1,232	-
1959	65	902	3,884	6	360	2,387	7	1,383	726	21	8,931	9,758	5	1,841	334
1960	73	1,038	3,294	10	548	2,593	4	1,341	761	20	8,704	9,802	8	2,001	395
1961	97	1,485	4,179	8	399	2,756	3	1,237	966	20	8,784	9,473	10	3,056	545
1962	81	1,060	4,382	11	427	2,787	4	1,569	1,106	20	9,786	9,527	13	4,492	652
1963	59	743	4,183	11	446	2,640	12	2,556	1,023	20	10,747	10,031	16	6,177	873
1964	99	916	3,977	14	535	2,553	12	3,561	893	19	11,996	10,085	16	7,025	889

Source: DSS 24-205

TABLE A-2
MARKET VALUE, FISHING INDUSTRY

NOVA SCOTIA

(Millions of Dollars)

Year	Frozen & Fresh Fish Products	Cured Fish Products	Fresh & Frozen Shellfish Products	Canned Fish & Shellfish Products	By-Products Other Marine Products	Total
1944	10.5	6.9	3.2	1.7	1.4	23.7
1954	19.1	10.6	9.0	1.6	3.8	44.1
1955	20.3	11.8	10.6	0.9	3.6	47.1
1956	19.4	13.7	11.4	1.0	3.8	49.4
1957	21.9	10.9	8.9	1.1	3.0	45.8
1958	27.0	10.5	8.8	0.8	4.1	51.3
1959	25.8	9.6	11.3	1.0	3.7	51.4
1960	23.9	12.1	11.5	0.8	3.4	51.8
1961	26.0	12.0	13.1	0.7	2.9	54.7
1962	30.7	12.2	18.3	0.6	5.6	67.4
1963	36.6	13.4	23.1	0.4	4.2	77.7
1964	41.4	12.7	30.0	0.3	6.2	90.5

Source: DBS 24-205

TABLE A-2
PRINCIPAL STATISTICS OF THE FISH PROCESSING INDUSTRY
NOVA SCOTIA⁽¹⁾

Year	No. of Establishments	Employment		Wages & Salaries \$'000	Values of Shipments (3) \$'000	Value Added \$'000
		Male	Female Total (2)			
1949	212	3,544	4,834	4,873	34,523	-
1950	207	3,373	4,673	5,397	36,358	-
1951	203	3,534	5,035	6,044	38,819	-
1952	198	3,417	4,424	6,827	40,010	-
1953	199	3,091	3,988	5,520	37,503	-
1954	184	3,212	4,122	7,207	41,414	-
1955	194	3,411	4,381	7,821	47,212	-
1956	194	3,243	4,236	7,822	48,175	-
1957	120	2,947	3,933	7,737	41,760	-
1958	134	3,008	3,988	7,992	47,209	14,711
1959	138	2,967	3,864	8,426	44,475	12,816
1960	131	2,930	3,899	8,730	48,883	15,929
1961	122	2,900	4,012	9,164	51,944	15,757
1962	124	2,971	4,055	9,739	58,050	17,110
1963	120	3,032	4,137	10,539	62,500 (est)	18,440

Source: CBS 32-216, 31-204

- (1) Data for 1949 to 1956 inclusive includes the activities of fish packers and handlers, 1957 to 1963 is based on the new Standard Industrial Classification with new establishment concepts.
 (2) The total employment includes working owners and partners thus male and female do not add up as of 1961.
 (3) Value of shipments and value added are on a total activity basis, thus from 1957 to 1960 inclusive the data is estimated to make the series compatible.

TABLE A-2
NOVA SCOTIA EXPORTS OF FISH PRODUCTS FOR SELECTED YEARS
(Thousands of Dollars)

Year	Fresh & Frozen Fish Products	Cured Fish Products	Fresh & Frozen Shellfish Products	Canned Fish & Shellfish Products	Other Fish Products	Total	
						\$,000	% of Output Exported
1937-38	711	1,826	1,709	1,280	196	5,722	63.5
1948	902	7,107	3,391	450	359	12,209	33.8
1952	690	13,303	5,147	634	19	19,793	46.6
1957	4,802	15,023	4,713	502	294	25,334	55.3
1961	5,486	12,871	7,084	407	160	26,010	47.6
1962	4,795	13,330	7,438	698	120	26,381	39.2
1963	5,736	14,266	8,609	550	69	29,232	37.6

Source: Dominion Bureau of Statistics, compiled by John F. Earl in "A Study of Nova Scotia Exports".

NOTE: 1937-38 is a fiscal year. A comparison of exports and output by products show certain discrepancies. Cured fish products show a greater amount exported than produced. This is probably the result of the problem of quantities of salt dried fish going through Nova Scotia exporters and ports but not produced in Nova Scotia. Other products such as fresh and frozen production show a smaller proportion exported than probably is the case. Again, this is the result of the problems of assigning exports to the province in which they are produced.

TABLE A-2
THE DESTINATION OF NOVA SCOTIA EXPORTS OF FISHERY PRODUCTS

Year	United States		Great Britain		British West Indies		Other Commonwealth		Latin America		European Economic Community		European free trade Area		Other	
	\$'000 Exports	% of \$'000 Exports	\$'000 Exports	% of \$'000 Exports	\$'000 Exports	% of \$'000 Exports	\$'000 Exports	% of \$'000 Exports	\$'000 Exports	% of \$'000 Exports	\$'000 Exports	% of \$'000 Exports	\$'000 Exports	% of \$'000 Exports	\$'000 Exports	% of \$'000 Exports
1937-38	2,908	50.8	1,160	20.3	810	14.2			656	11.5	62	1.1	113	2.0	15	0.2
1947	3,718	39.9	296	3.2	2,607	28.0	6	0.0	1,874	20.1	159	1.7	51	0.5	612	6.6
1952	7,054	35.6	309	1.6	2,775	14.0	2	0.0	9,631	48.7	13	0.1	1	0.0	4	0.0
1957	10,626	41.9	560	2.2	5,839	23.0	-	-	8,226	32.5	74	0.3	7	0.0	2	0.0
1962	13,683	51.9	724	2.7	6,032	22.9	24	0.1	5,829	22.1	13	0.0	70	0.3	6	0.0
1963	15,886	54.3	346	1.2	6,426	22.0	1	0.0	6,152	21.0	165	0.6	170	0.6	88	0.3

Source: Dominion Bureau of Statistics, compiled by John F. Earl in "A Study of Nova Scotia Exports".

TABLE A-2

EMPLOYMENT AND PRODUCTION TARGETS 1968, 1972 - N.W.A. SCOTIA FISHERIES

	FISHING			FISH PROCESSING			TOTAL FISHERIES SECTOR ⁴		
	Quantity	Landings Value ¹	Employment ²	Net Value	Employment ³	Value	Employment		
	'000 lbs. %	\$1,000 %	No. %	\$1,000 %	No. %	\$1,000 %	No. %	%	
H.I.S.T.O.R.I.C.A.L.									
1960	408,840	28,044	12,780	15,929	3,889	42,923	16,669		
1961	459,062	27,741	6.3	15,757	-1.0	41,498	3.5	-0.8	
1962	455,903	20.9	12,711	17,110	8.6	4,035	3.1	1.4	
1963	427,127	22.0	13,463	18,440	7.8	4,137	1.2	5.0	
1964	314,703	20.2	17.1	13,233	-1.0	4,035	1.5	-0.1	
P.R.O.J.E.C.T.I.O.N.S.									
1965	392,000	15.0	49,500	16.6	13,500	1.3	4,350	1.5	
1966	683,000	15.4	47,100	-4.8	13,400	-0.7	4,400	-0.3	
1967	797,000	16.0	53,000	12.5	13,500	-0.7	4,500	-	
1968	906,000	13.4	58,700	9.8	13,100	-0.8	4,600	-0.6	
	(14.5)		(47.1)	(27.9)	(8.2)	(34.1)	(0.7)		
Median Range to 1972									
1972	1,000,000	144.8	81,700	(91.3)	12,500	(-6.2)	5,100	(83.1)	
								(0.1)	

Notes:

¹ % is change over preceding year.² % is change over 1964.³ Total Value of all marine products.⁴ Total employment for the year.⁵ Average monthly employment.⁶ Total of the two corresponding columns.

APPENDIX B

Committee Members

Sector Committee

C.A. Aucoin	Halifax
J.D. Aucoin	Cheticamp
L.E. Baker	Halifax
W.A. Broidy	Victoria
R.J. Cadegan	Glouce Bay
S.J. Campbell	Halifax
E.J. Comeau	Saulnierville
H.P. Connor	Halifax
D.E. Corney	Mulgrave
G. Curphey	Liverpool
C.D. Gordon	Halifax
D.R. Idler	Halifax
R.F. Johnson	Halifax
K. Karlsen	Halifax
R.J. Keefe	Canso
V.L. Landry	Boudreauville
D. MacKenzie	Halifax
J.H. MacKichan*	Halifax
B.I. Meagher	Halifax
J.R. Mills	Halifax
D.A. Nickerson	Clark's Harbour
V.G. Snow	Digby
N. Stanbury	Halifax
J.F. Vaughan	Halifax
R.S. Watson **	Halifax
S.H. Zwicker	Lunenburg

Segment Committees

Fresh and Frozen Fish

A.W. Churchill**	Halifax
B.J. Comeau*	Saulnierville
C.D. Gordon	Halifax
E.P. Kaiser	Bickerton
Capt. D. Mosher	Lunenburg
W.R. Murdoch	Dartmouth
J. Nickerson, Jr.	North Sydney

Fresh and Frozen Fish - Cont'd.

E.E. Pierce	Lockeport
H.J. Pyke	Lunenburg
K.O. Raymond	Centreville
Capt. M.H. Rodgerson	Port La Tour

Salt and Pickled Fish

J. Barbarita	Neill's Harbour
B.E. Blades	Clark's Harbour
S.J. Campbell	Halifax
R.F. Johnson	Halifax
D. MacKenzie*	Halifax
R.T. Morgan**	Halifax
R.N. Ritcey	Halifax
W.V. Sears	Riverport
St. Clair Shand	Woods Harbour
F.S. Smith	Shag Harbour
S.H. Zwicker	Halifax
	Lunenburg

Loobsters

J.D. Aucoin*	Cheticamp
W.A. Broidy	Pictou
K.E. Cunningham	Clark's Harbour
L.E. Day	Alder Point
H.R.S. Ellis	Pictou
D.S. Feltmate	Canso
W. Little	Terrence Bay
J.F. Samson	Petit de Grat
C.D. Snow	Digby

Fish By-Products

R.C. Ackman	Halifax
F.J. Cadogan	Glace Bay
A. Cunningham	Halifax
C. Kielkrem	Yarmouth
C.A. Humphreys	Halifax
K. Karlsen	Halifax
A.H. Sears	Bedford

Fish By-Products - cont'd.

A.B. Twonig	Halifax
J.W. Vaughan*	Halifax
R.G. Watson**	Halifax

Vessel Owners and Operators

H.P. Connor*	Halifax
D.F. Corney	Halifax
A.A. Ferguson	Halifax
J. Forbes	Halifax
W.G. Hines **	Halifax
J.H. MacKichan	Halifax
P.R. Ritcey	Riverport
R.D. Smith	Halifax
F.R. Spindler	Lunenburg
H.E. Thompson	Liverpool

* Chairman

** Secretary



APPENDIX 2

The following is a list of the recommendations made by the Fisheries Sector Committee which were accepted by the Voluntary Planning Board for inclusion in the First Plan.

1. Representatives of industry and government should meet for the purpose of establishing a programme of on-vehicle training for those fishermen who cannot attend the district school. The Board directs this recommendation to the Inter-departmental Advisory Committee on Man-power Research.

2. Immediate study by industry and government should be given to upgrading the presently proposed qualifications for licensing skippers, mates and engineers; a definite date should be established for the implementation of these qualification requirements. The Board directs this recommendation to the Inter-departmental Advisory Committee on Man-power Research.

3. An extension service should be established within the Nova Scotia Department of Fisheries.

4. To expand the supply of raw material, new fishing grounds should be sought and research work conducted into the greater utilization of other species, such as codfish and shrimp. Furthermore, extensive studies be made on the value of fish products and the possibilities of further processing of these products. The Board directs this recommendation to the Inter-departmental Advisory Committee on Man-power Research.

transplantation and other factors pertinent to "farming". The Board directs this recommendation to the Fisheries Research Board.

5. There is need for the development of new techniques and equipment in conjunction with more research into the life cycles and habits of fish, especially in the field of the location of fish populations at certain times of the year. A step in this direction would be the increased use of the federal research vessel A.T. CAMERON and a similar ship about to be built. These vessels should do more reconnaissance of the whereabouts of fish and communicate this information immediately to the Canadian fishing fleet.

6. While useful beginnings have been made in joint industry-government research and development work, considerably more emphasis should be placed on these efforts in the future.

7. Canada lags behind its competitors in the development of new gear and fishing techniques. It is agreed that the best approach to this problem is to combine the efforts of government and industry in an expanded programme of development and adaptation of new gear and techniques for the Canadian fisheries. One specific experimental technique which should be developed further is the use of the mid-water trawl.

8. The possibility of increasing the development of the Nova Scotia offshore herring fisheries should be investigated as a means of furthering the by-products industry.

9. A study should be initiated to establish the amount of waste presently available which is not reaching the by-products industry. It should be determined if this waste may be economically used in the industry. The Board directs this recommendation to the Nova Scotia Research Foundation.

10. A programme of formal training in broad job principles for foremen and supervisors should be established. Such a programme would be of decided value in up-grading this class of employee in the fish-processing industry. The Board agreed that this recommendation should be directed to the Work Study School and also to the Inter-departmental Advisory Committee on Manpower Research.

11. To solve the problem of over-capitalization in the lobster fishery, the Canada Department of Fisheries should be asked to organize a series of district meetings to discuss the problem and to make recommendations for further discussion at a general meeting. Representatives of the processors, as well as the fishermen, should be invited to attend. A survey should then be carried out by zones to ascertain the opinions of the fishermen with regard to the limitation of the number of traps and other possible recommendations. If favourable, steps should be taken to pass legislation to enforce same. If unfavourable, steps should be taken to educate the fishermen with the ultimate view of voluntary enforcement.

12. The Nova Scotia Department of Fisheries should establish and maintain a

registry of the provincial fishing fleet to record the size, capacity, type, age, value and number of men employed for each vessel. A similar registry should also be established for fish-processing plants to record similar pertinent information.

13. A study should be initiated by the Fisheries Research Board to provide more details concerning the possibilities of further developing the liquid nitrogen freezing process for use in the Nova Scotia fish-processing industry.

14. The existing British West Indies Trade Agreement should be renegotiated with a view to the development of maximum salt fish markets, not only in the British West Indies but in the entire Caribbean area.

15. Detailed studies should be initiated to develop new uses and markets for fish by-products.

16. Study should be given to improving methods of handling fish from ship to shore, as this is a possible area for production cost reductions. The Board agreed that this matter should be directed by the sector committee to the Work Study School.

17. The Provincial Government should discontinue any further financial assistance for the installation of fish dryers.

18. The present action of the Canadian Hydrographic Service, which is now preparing new charts for fishermen, is endorsed: these charts should be

completed as soon as possible.

19. The Canadian Committee on Oceanography should watch the progress of research by the National Institute of Oceanography in England, since this research should prove extremely valuable to Canadian fishermen.

20. Starting with an official opening, the Provincial Government should institute a programme to publicize the training facilities available at the fisheries school in Pictou.

21. A fishing industry representative should tour the province's vocational schools to describe the opportunities of a career in marine engineering to the graduating classes.

22. A team of industry and government representatives should give talks at regional high schools in the province on opportunities in the fishing industry.

23. The Pictou fisheries school should concentrate on up-grading those men already in the industry. New candidates for this school should have some prior fishing experience. The Board agreed that this matter should be directed by the sector committee to the Inter-departmental Advisory Committee on Manpower Research.

24. When the Transportation Sector Committee is studying the transportation problems of other sectors the problems of the fisheries sector should be included.

